

Clinical and histopathological study on reproductive lesions caused by *Pasteurella multocida* type B:2 immunogens in buffalo heifers

ABSTRACT

Hemorrhagic septicemia (HS) is a globally renowned disease that affects cattle and buffaloes. Its effects on the reproductive system have not been previously studied. Thus, the present study aims to evaluate the pathological responses in pre-pubertal female buffalo infected with immunogens; lipopolysaccharide (LPS) and outer membrane protein (OMP) derived from *P. multocida* type B:2. Fifteen healthy pre-pubertal female buffaloes of approximately 8 months old were selected and divided into five equal groups of 3 buffaloes each. Buffaloes in groups 1 and 2 were intravenously and orally inoculated with 10 mL of *P. multocida* LPS at 1×10^{12} colony forming unit (cfu), while those in group 3 and group 4 were subcutaneously and orally inoculated with 10 mL of *P. multocida* OMP at 1×10^{12} colony forming unit (cfu). Buffaloes in group 5 were inoculated with 10 mL of sterile phosphate buffered saline (PBS) pH7 and served as the negative control. During the post infection period, all buffaloes were examined for clinical signs throughout 21 days and surviving buffaloes were euthanized for postmortem evaluation. Histopathological evaluation of buffaloes inoculated with LPS showed a significantly higher occurrence ($p < 0.05$) of necrosis and degeneration in the uterine horn and supramammary glands of buffaloes inoculated intravenously. Following inoculation with OMP, hemorrhage and congestion was significantly higher ($p < 0.05$) in the ovaries, cervix, vagina, mammary and supra-mammary glands of buffaloes inoculated subcutaneously, while necrosis and degeneration and inflammatory cell infiltration in different organs was also significantly increased in the same inoculation group. The findings of this study have shown that both *P. multocida* bacterial LPS and OMP affect the uterine horn, ovaries, cervix, mammary gland and supramammary lymph nodes of buffalo calves inoculated either intravenously or subcutaneously, as compared to those inoculated orally.

Keyword: *Pasteurella multocida* B:2; Lipopolysaccharide; OMP; Histopathology; Reproductive organs; Pre-pubertal buffaloes

